IR DIODE BASED HIGH INTENSITY LIGHT

ABSTRACT

The present invention is directed to an infrared light assembly (10, 30, 80, 90). A preferred embodiment of the light assembly (10, 30, 80, 90) may be used on aircraft or other vehicles for landing, taxi mode, or search operations. The light assembly (10, 30, 80, 90) preferably only requires about 10 to 20 watts of power. The light assembly (10, 30, 80, 90) may include a housing (12, 32, 82), a base (14, 34, 50), an IR diode (16, 36, 60), and an aspheric lens (18, 38). The base (14, 34, 50) is preferably connected to the bottom portion (22) of the housing(12, 32, 82), and the aspheric lens (18, 38) is preferably connected to the top portion (24) of the housing (12, 32, 82). The IR diode (16, 36, 60) may be mounted on the base (14, 34, 50). The housing (12, 32, 82) and the base(14, 34, 50) preferably have high thermal conductivity, and they preferably act as heat sinks. In addition, a plurality of thermal electric coolers (20, 40, 70) may be positioned between the base (14, 34, 50) and the IR diode(16, 36, 60) for additional dissipation of the heat generated by the light assembly. The IR diode (16, 36, 60) is adapted to emit infrared light. The light assembly (10, 30, 80, 90) preferably maintains a substantially constant operating temperature so that the peak emission of the IR diode (16, 36, 60) is substantially maintained. The infrared light may radiate through the hollow of the housing(12, 32, 82) to the aspheric lens (18, 38). The aspheric lens (18, 38) is preferably adapted to collimate infrared light. As a result, the light assembly (10, 30, 80, 90) may provide a collimated beam of infrared light having a NVIS radiant intensity greater than about 2.